

What is claimed is:

[1. A card type input/output interface device comprising:

first data transmission means for transferring data between a main body of an electronic device and the card type input/output interface device;

second data transmission means, coupled to said first data transmission means, for transferring data between an external device and the card type input/output interface device; and

a card supporting said first and second data transmission means,

said first data transmission means being accommodated in said main body when the card type input/output interface device is inserted into a slot provided in said main body of the electronic device so as to transfer data between said card type input/output interface device and said electronic device.]

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2. A card type input/output interface device as claimed in claim [1] 38, wherein said second data [transmission means] interface unit comprises radio transmitter/receiver means for transferring the data between said external device and the card type input/output interface device through a radio communications channel.

[3. A card type input/output interface device as claimed in claim 2, and further comprising data transfer circuit means, interposed between said first and second data interface unit, for providing an interface of data transfer between said first data interface unit and said radio transmitter/receiver means.]

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4. A card type input/output interface device as claimed in claim 2, wherein said second data [transmission means] interface unit comprises an antenna coupled to said radio transmitter/receiver means.

5. A card type input/output interface device as claimed in claim 4, wherein said antenna is a rod type antenna.

6. A card type input/output interface device as claimed in claim 4, wherein said antenna is a rod type antenna which is contractible and expandable.

7. A card type input/output interface device as claimed in claim 4, wherein said antenna is a rod type antenna which is contractible and expandable and which is rotatably supported to said card.

8. A card type input/output interface device as claimed in claim 4, wherein said antenna is an edge portion of said card.

9. A card type input/output interface device as claimed in claim [1] 8, wherein:

said card has a projection in which said second data [transmission means] interface unit is provided;

said first data [transmission means] interface unit is located in a first end portion of said card and said second data [transmission means] interface unit is located in a second end portion opposite said first end portion; and

a thickness of said second end portion of said card including said projection is greater than a thickness of said first end portion of said card.

10. A card type input/output interface device as claimed in claim 9, wherein said projection upwardly projects from a surface of said card.

11. A card type input/output interface device as claimed in claim 9, wherein said projection projects upwardly and downwardly projects from opposing surfaces of said card.

12. A card type input/output interface device as claimed in claim 9, wherein:

said card has a first width in said first end portion;

said projection has a second width in said second end portion; and

said first width is equal to said second width.

13. A card type input/output interface device as claimed in claim 9, wherein:

said card has a first width in said first end portion;

said projection has a second width in said second end portion; and

said second width is smaller than said first width.

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14. A card type input/output interface device as claimed in claim 9, wherein said second data [transmission means] ~~interface unit~~ comprises a connector formed in said projection for electrically connecting the card type input/output interface device to said external device.

15. A card type input/output interface device as claimed in claim 14, wherein said connector is a pin modular connector.

16. A card type input/output interface device as claimed in claim 14, wherein said connector is a Centro-connector.

17. A card type input/output interface device as claimed in claim 14, wherein said connector is an RS-232C connector.

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18. A card type input/output interface device as claimed in claim [1] 28, wherein said first data [transmission means] interface unit comprises a connector for electrically connecting said ~~the~~ card type input/output interface device to said electronic device.

[19. An electronic device system comprising:

a main body of an electronic device, said main body comprising a slot;

a card type input/output interface device operable to be inserted into said slot; and

an external device,

wherein said card type input/output interface device comprises:

first data transmission means, for transferring data between the main body and the card type input/output interface device;

second data transmission means, coupled to said first data transmission means, for transferring data between said external device and said card type input/output interface device; and

a card supporting said first and second data transmission means,

said first data transmission means being accommodated in said main body when said card type input/output interface device is inserted into said slot provided in the main body so as to transfer data between said external device and said card type input/output device and said electronic device, and wherein:

the main body comprises third data transmission means, coupled to said first data transmission means, for coupling the main body and said card type input/output interface device with each other and transferring data therebetween; and

said external device comprises fourth data transmission means, coupled to said second data transmission means, for coupling said card type

input/output interface device and said external device with each other and transferring data therebetween.]

20. An electronic device system as claimed in claim [19] 39, wherein:

said second data [transmission means] interface unit comprises first radio transmitter/receiver means for transferring the data between said external device and said card type input/output interface device through a radio communications channel[; and].

[said fourth data transmission means comprises second radio transmission/receiver means for transferring the data between said external device and said card type input/output interface device through said radio communications channel.]

[21. An electronic device system as claimed in claim 19, wherein said card type input/output interface device further comprised data transfer circuit means, interposed between said first and second data interface unit, for providing an interface of data transfer between said first data interface unit and said first radio transmitter/receiver means.]

22. An electronic device system as claimed in claim 20, wherein:

said second data [transmission means] interface unit comprises a first antenna coupled to said first radio transmitter/receiver means[; and].

[said fourth data transmission means comprises a second antenna coupled to said second radio transmitter/receiver means.]

23. An electronic device system as claimed in claim 22, wherein said first antenna is a rod type antenna.

24. An electronic device system as claimed in claim 22, wherein said first antenna is a rod type antenna which is contractible and expandable.

25. An electronic device system as claimed in claim 22, wherein said first antenna is a rod type antenna which is contractible and expandable and which is rotatably supported to said card.

26. An electronic device system as claimed in claim 22, wherein said first antenna is an edge portion of said card.

27. An electronic device system as claimed in claim [19] 39, wherein:

said card has a projection in which said second data [transmission means] interface unit is provided;

said first data [transmission means] interface unit is located in a first end portion of said card and said second [connection means] data interface unit is located in a second end portion opposite said first end portion; and

a thickness of said second end portion of said card including said projection is greater than a thickness of said first end portion of said card.

28. An electronic device system as claimed in claim 27, wherein said projection upwardly projects from a surface of the card.

29. An electronic device system as claimed in claim 27, wherein said projection projects upwardly and downwardly projects from opposing surfaces of said card.

30. An electronic device system as-claimed in claim 27, wherein:

said card has a first width in said first end portion;

said projection has a second width in said second end portion; and

said first width is equal to said second width.

31. An electronic device system as claimed in claim 27, wherein:

said card has a first width in said first end portion;

said projection has a second width in said second end portion; and

said second width is smaller than said first width.

32. An electronic device system as claimed in claim 27, wherein said second data [transmission means] interface unit comprises a connector formed in said projection for electrically connecting said card type input/output interface device to said external device.

33. An electronic device system as claimed in claim 32, wherein said connector is a pin modular connector.

34. An electronic device system as claimed in claim 32, wherein said connector is a Centro-connector.

35. An electronic device system as claimed in claim 32, wherein said connector is an RS-232C connector.

36. An electronic device system as claimed in claim [19] 32, wherein said first data [transmission means] interface unit comprises a connector for electrically connecting said card type input/output interface device to said main body.

37. An electronic device system as claimed in claim 20, wherein said external device comprises fifth data transmission means, coupled to said second radio transmitter/receiver means, for coupling said external device to another external device and transferring data there between.

38. A card type input/output interface device for operatively connecting an electronic device to an external device, comprising:

a card including:

a first data interface unit on one end of the card for coupling to the electronic device for transferring input information to the electronic device and output information from the electronic device when the card is inserted into a slot provided in an external wall in the body of the electronic device;

a second data interface unit on an opposing end of the card for coupling to the external device for transferring the output information to the external device and the input information from the external device; and

a data transfer circuit in response to the input information being received by the second data interface unit for transferring the input information to the first data interface unit and in response to the output information being received by the first data interface unit, for transferring the output information to the second data interface unit.

39. An electronic system, comprising:

an electronic device, provided with a slot on an external wall thereof;

an external device providing a peripheral function for the electronic device; and

a card interface, inserted into the slot of the electronic device, and coupling the electronic device to the external device, the card including:-

a first data interface unit on one end of the card for coupling to the electronic device for transferring input information to the electronic device and output information from the electronic device when the card interface is inserted into the slot;

a second data interface unit on an opposing end of the card for coupling to the external device for

transferring the output information to the external device and the input information from the external device; and

a data transfer circuit, in response to the input information being received by the second data interface unit, for transferring the input information to the first data interface unit, and in response to the output information being received by the first data interface unit, for transferring the output information to the second data interface unit.

40. A card type input/output interface device for operatively connecting an electronic device to an external device, comprising:

a card, provided with a first end portion and a second end portion opposite to the first end portion, including:

a data transfer circuit for transferring information between the electronic device and the external device,

a first parallel data connector, formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the card is inserted into a slot provided in an external wall in the body of the electronic device; and

a second data connector, formed on the second end portion of the card, for coupling the data transfer circuit to the external device.

41. A card type input/output interface device for operatively connecting an electronic device to an external device, comprising:

a card including:

a parallel data connector for transferring input information to the electronic device and output information from the electronic device when the card is inserted into a slot provided in an external wall in the body of the electronic device;

a wireless data transmitter/receiver for transmitting the output information to the external device and for receiving the input information from the external device via a wireless communication channel; and

a data transfer circuit, in response to receiving the input information by the wireless data transmitter/receiver, for transferring the input information to the parallel data connector, and in response to receiving the output information by the parallel data connector, for transferring the output information to the wireless data transmitter/receiver.

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42. A card type input/output interface device according to claim 39, wherein the wireless data transmitter/receiver transmits the input information to the external device and receives the output information from the external device via a radio communication channel.

43. A card type input/output interface device for operatively connecting an electronic device to an external device, comprising:

a card including:

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a converter for receiving a parallel bit digital information from the electronic device and for converting the parallel bit digital information into a serial bit digital information when the card is inserted into a slot provided in an external wall in the body of the electronic device; and

a data transfer circuit for transferring the serial bit digital information from the converter to the external device.

44. A card type input/output interface device for operatively connecting an electronic device to an external device, comprising:

a card, provided with a first end portion and a second end portion, opposite to the first end portion, having a thickness greater than a thickness of the first end portion, including:

a data transfer circuit for transferring information between the electronic device and the external device.

a first parallel data connector, formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the first end portion of the card is inserted into a slot provided in the external wall in the body of the electronic device; and

a second data connector, formed on the second end portion, for coupling the data transfer circuit to the external device.

45. A system, to be operatively connected to an electronic device, comprising:

an external device providing a peripheral function for the electronic device; and

a card interface, electrically connected to the external device, the card including:

a first data interface unit for transmitting input information to the electronic device and for receiving output information from the electronic device when the card interface is inserted into a slot provided in an external wall in the body of the electronic device;

a second data interface unit for transmitting the output information to the external device and for receiving the input information from the external device; and

a data transfer circuit, in response to receiving the input information by the second data interface unit, for transferring the input information to the first data interface unit, and in response to receiving the output information by the first data interface unit, for transferring the output information to the second data interface unit.

46. A system, to be operatively connected to an electronic device, comprising:

an external device providing a peripheral function for the electronic device; and

a card, provided with a first end portion and a second end portion opposite to the first end portion, the card including:

a data transfer circuit for transferring information between the electronic device and the external device,

a first connector, formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the first end portion of the card is inserted into a slot provided in the electronic device; and

a second connector, formed on the second end portion of the card, for electrically connecting the data transfer circuit to the external device.

47. A system, to be operatively connected to an electronic device, comprising:

an external device providing a peripheral function for the electronic device; and

a card interface, operatively connected to the external device via a wireless communication channel including:

a parallel data connector for transferring input information to the electronic device and output information from the electronic device when the card interface is inserted into a slot provided in an external wall in the body of the electronic device;

a wireless data transmitter/receiver for transmitting the output information to the external device and for receiving the input information from the external device via the wireless communication channel; and

a data transfer circuit, in response to receiving the input information by the wireless data transmitter/receiver, for transferring the input information to the parallel data connector, and in response to receiving the output information by the parallel data connector for transferring the output information to the wireless data transmitter/receiver.

48. A system according to claim 45, wherein the wireless data transmitter/receiver transmits the output information to the external device and receives the input information from the external device via a radio communication channel.

49. A system, to be operatively connected to an electronic device, comprising:

an external device providing a peripheral function for the electronic device; and

a card interface, operatively connected to the external device including:

a converter for receiving a parallel bit digital information from the electronic device and for converting the parallel bit digital information into a serial bit digital information when the card interface is inserted into a slot provided in an external wall in the body of the electronic device;

a data transfer circuit for transferring the serial bit digital information from the converter to the external device.

50. A system, to be operatively connected to an electronic device, comprising:

an external device providing a peripheral function for the electronic device; and

a card, provided with a first end portion and a second end portion, opposite to the first end portion, having a thickness greater than a thickness of the first end portion, including:

a a data transfer circuit for transferring information between the electronic device and the external device;

a first parallel data connector, formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the first end portion of the card is inserted into a slot provided in an external wall in the body of the electronic device; and

a second data connector, formed on the second end portion, for coupling the data transfer circuit to the external device.

51. An electronic system comprising:

an electronic device, provided with a slot in an external wall in the body thereof;

an external device providing a peripheral function for the electronic device; and

a card interface, provided with a first end portion and a second end portion opposite to the first end portion, the first end portion inserted into the slot of the electronic device, the card including:

a data transfer circuit for transferring information between the electronic device and the external device;

a first parallel data connector, formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the first end portion of the card is inserted into the slot; and

a second data connector, formed on the second end portion of the card, for coupling the data transfer circuit to the external device.

52. An electronic system, comprising:

an electronic device, provided with a slot in an external wall in the body thereof;

an external device providing a peripheral function for the electronic device; and

a card interface, inserted into the slot of the electronic device and operatively connecting the electronic device to the external device via a wireless communication channel, the card including:

a parallel data connector for transferring input information to the electronic device and for receiving output information from the electronic device when the card interface is inserted into the slot;

a wireless data transmitter/receiver for transmitting the output information to the external device and for receiving the input information from the external device via the wireless communication channel; and

a data transfer circuit, in response to receiving the input information by the wireless data transmitter/receiver, for transferring the input information to the parallel data connector, and in response to receiving the output information by the parallel connector, for transferring the output information to the wireless data transmitter/receiver.

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53. An electronic system according to claim 50, wherein the wireless data transmitter/receiver transmits the output information to the external device and receives the input information from the external device via a radio communication channel.

54. An electronic system, comprising:

an electronic device, provided with a slot in an external wall in the body thereof,

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an external device providing a peripheral function for the electronic device; and

a card interface, inserted into the slot of the electronic device, and operatively connecting the electronic function to the external device, including:

a converter for receiving a parallel bit digital information from the electrical device and for converting the parallel bit digital information into a serial bit digital information;

a data transfer circuit for coupling the serial bit digital information from the converter to the external device.

55. An electronic system, comprising:

an electronic device, provided with a slot in an external wall in the body thereof;

an external device providing a peripheral function for the electronic device;- and

a card interface, provided with a first end portion inserted into the slot of the electronic device and a second end portion opposite to the first end portion, having a thickness greater than a thickness of the first end portion, including:

a data transfer circuit for transferring information between the electronic device and the external device;

a first parallel data connector; formed on the first end portion of the card, for electrically connecting the data transfer circuit to the electronic device when the card interface is inserted into the slot; and

a second data connector, formed on the second end portion, for coupling the data transfer circuit to the external device.